NOT FOR PUBLIC RELEASE

SURVEY REPORT OF CUNDY HARBOR MAINE

AUTHORITY - THIS REPORT IS SUBMITTED IN COMPLIANCE WITH SECTION 6 OF THE RIVER AND HARBOR ACT APPROVED 2 MARCH, 1945.

U. S. ENGINEER OFFICE
BOSTON, MASS.
3 SEPT. 1946

COPY NO. 7

SUBJECT: Survey of Cundy Harbor, Maine

NEDGW 1st Ind. CAT/mms
(3 Sept 46)

Division Engineer, New England Division, Boston 10, Mass., 18 September 1946

TO: The Chief of Engineers, U. S. Army, Washington 25, D. C.
ATTENTION: ENGWR

I concur in the recommendation of the District Engineer that no project for improvement of Cundy Harbor, Maine, be adopted at this time.

D. L. WEART
Brigadier General, U.S.A.
Division Engineer

1 Incl.: n/c

SURVEY OF CUNDY HARBOR, MAINE

Syllabus

The district engineer is of the opinion that the improvement of Cundy Harbor, Maine by the construction of a stone breakwater extending in an east northeasterly direction about 600 feet from White Point is not economically justified. He, therefore, recommends that no project for the improvement of Cundy Harbor, Maine be adopted at this time.

War Department
United States Engineer Office
Boston 16, Massachusetts
3 September 1946

Subject: Survey of Cundy Harbor, Maine

To: The Chief of Engineers, U. S. Army, through the Division Engineer, New England Division, Boston 10, Massachusetts

1. Authority.- This report is submitted in compliance with Section 6 of the River and Harbor Act approved 2 March 1945 (Public Law No. 14 - 79th Congress) which reads in part as follows:

> "Sec. 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities, ... Cundys Harbor, Maine".

2. In accordance with the above authority, a preliminary examination of the locality was made and the district engineer, in his report dated 31 January 1946, recommended that a survey be made. The division engineer and the Board of Engineers for Rivers and Harbors concurred in the views of the district engineer, and a survey was authorized by the Chief of Engineers under date of 15 April 1946.

3. Description.- Cundy Harbor is situated near the southerly end of Sebascodegan Island in Casco Bay. The island extends in a generally north-south direction with many coves and bays running in the same direction. New Meadows River flows along the east side, while Harpswell

Sound is to the west. Cundy Harbor is an indentation about 3,500 feet long on the east side of the island, and has depths varying from 19 to 28 feet at mean low water. The northerly portion of the harbor is protected on the east by Little Island and Cedar Ledges. The harbor, which is located about 5 miles from the open sea at Cape Small, is reached by a deep channel that is well buoyed and easily navigated. Portland is about 22 miles by water to the southwest, and Bath and Boothbay Harbor are about 23 miles and 22 miles by water, respectively, to the northeast. While the harbor is located midway between Portland and Boothbay and is otherwise desirable, it has the disadvantage of poor protection against winds from the south, and to a lesser extent from the northeast as well as being rather rough due to the combination of the winds and rather strong flow of tides in the New Meadows River.

4. There are no bridges crossing the locality under consideration, nor are questions of water power, flood control, or other special subjects involved. The locality is shown on U. S. Coast and Geodetic Survey Charts Nos. 315 and 1204, and on the map accompanying this report. The mean range of tide is 8.8 feet.

5. Tributary area.- The Town of Harpswell embraces numerous islands in the northeastern portion of Casco Bay. In 1940 it had a total population of 1,305, with estates valued at $1,429,618. The town is made up of a number of villages of which Cundy Harbor is one of four having a post office. Cundy Harbor is connected with the Town of Brunswick, about 9 miles away, by a third class road that the State of Maine is planning to improve into a first class road. The nearest rail connection is at Brunswick. The principal sources of revenue to the residents of the locality are fishing and the business incident to supplying the needs of summer vacationists. In the past, Cundy Harbor was a resort town, although in recent years the trend has been toward the development of the fishing industry.

6. Prior reports.- The only prior report on Cundy Harbor is the preliminary examination report described in paragraph 2.

7. Existing project.- There is no existing project at this locality.

8. Terminal and transfer facilities.- There are three privately owned wharves at Cundy Harbor, all of which are used principally in connection with the receipt of fish. These wharves have facilities for providing fuel to cruising yachts and are open to all at no charge. The Watson Wharf is located at the northern end of the harbor and consists of quite an old pile and timber structure about 150 feet long. A large pound for storing live lobsters is contiguous to the wharf. At the lower end of the harbor are located the other two wharves both of which are of pile and timber construction. The Holbrook Wharf is very old and is capable of accommodating vessels engaged in lobster fishing. The Juliano Wharf was constructed in the fall of 1945 and is capable of accommodating large fishing vessels. On the back of the wharf is a timber truss building in which fish are processed. There is ample water at the wharves at all times. The facilities at Cundy Harbor appear to be adequate for the present needs of the harbor.

9. Improvement desired.- A public hearing was held at Cundy Harbor on 9 August 1945 to determine the nature and extent of the improvement desired by local interests and to give interested parties an opportunity to be heard. Present at the hearing were a number of local residents and fishermen, as well as the proprietors of the local fish companies. The report on the preliminary examination, together with transcript of hearing, exhibits presented, map and other pertinent papers, was submitted to the division engineer 31 January 1946.

10. The improvement desired by local interests is the construction of a breakwater at the southerly end of the harbor extending about 600 feet in an east northeasterly direction from White Point.

11. It is stated that the breakwater is required to protect the harbor against gales from the southerly directions. Such storms have caused considerable damage to and loss of vessels, as well as causing destruction of shore installations.

12. It is expected by the proponents that the improvement will result in an appreciable increase in the commercial fishing business as a result of being able to discharge the catch more easily, and through the development of a larger local fishing fleet.

13. The proponents also are of the opinion that a safer anchorage for yachts will give impetus to the growth of the summer resort business.

14. A cash contribution toward the cost of the improvement probably will not be forthcoming from local interests, although there is a possibility of a town landing being provided if it appears necessary.

15. Commerce and vessel traffic.- Commerce at Cundy Harbor is limited to the receipt of seafood. Over 250,000 pounds of lobsters, 15,000,000 pounds of sardines, and 3,000,000 pounds of whiting, cod and mixed fish are handled at the harbor yearly. Vessel traffic is largely connected with the fishing business with the vessels ranging from 25 feet to 75 feet in length and drawing from 4 to 8 feet.

16. Difficulties attending navigation.- The principal difficulty that vessels have to contend with is the lack of protection against southerly gales. This, combined with the roughness in the harbor due to winds and tides, serve to cause fishermen to use the harbor with reluctance and to make yachtsmen avoid it when possible.

17. Survey.- In order to determine the conditions and to obtain data upon which to base an estimate of cost of the desired improvement, a sounding survey was made in May 1946 of the area northeasterly of White Point at Cundy Harbor. The accompanying map, marked "Cundy Harbor, Maine, in one sheet, scale 1:1000, file No. 1091 D-6-2" shows the

latest soundings and other general features.

18. Plans of improvement.- The plan of improvement considered in this report, and shown on the accompanying map, is the same as that desired by local interests and consists of a breakwater at the southerly end of the harbor extending approximately 600 feet in an east northeasterly direction from White Point. This plan is the minimum required to afford protection to the northerly portion of the harbor. About one hundred forty feet from White Point proper there is a ledge outcrop from which the breakwater would extend. The water reaches a depth of about 36 feet within about a hundred feet of the outcrop and then continues in a shelf of about the same depth until the deep channel of the New Meadows River is reached. No appreciable saving in the amount of stone required can be secured by a breakwater giving equal protection but placed in a different direction.

19. Aids to navigation.- The local representative of the Coast Guard at Boston, Massachusetts has been consulted with respect to the aids to navigation required for the proposed improvement. The location of the aid proposed by him is shown on the accompanying plan.

20. Estimate of first cost.- The estimate of first cost of the improvement is as follows:

132,000 tons @ $5.00	$660,000
Estimated cost of providing aid to navigation by U. S. Coast Guard	5,000
Estimated annual cost of maintenance (breakwater)	500
Estimated annual cost of maintenance (aid to navigation)	100

The above estimate includes engineering and contingency costs. The estimated cost of the aid to navigation and the estimated annual maintenance cost is based upon information furnished by the local representative of the Coast Guard.

21. Estimate of annual charges.- The estimated annual carrying charge, based on an assumed life of 40 years for the improvement, is given below. Amortization of the cost of the aid to navigation is based on an economic life of 15 years for these structures.

a. Federal Investment:

(1) Estimated cost of new work Engineer Department	$660,000	
Less Local Cooperation, (one-quarter first cost)	165,000	$495,000
(2) Estimated cost of Aids to Navigation, U. S. Coast Guard		5,000
(3) Total Federal Investment		$500,000

b. Federal Annual Charges:

(1) Interest at 3% on Item a(3)	$ 15,000
(2) Amortization of Item a(1) (40 years at 3%)	6,564
(3) Amortization of Item a(2) (15 years at 3%)	269
(4) Estimated annual maintenance cost of breakwater	500
(5) Estimated annual maintenance cost of aid to navigation	100
(6) Total Federal Annual Charges	$ 22,433

c. Non-Federal Investment:

(1) Funds to be contributed	$165,000
(2) Total Non-Federal Investment	$165,000

d. Non-Federal Annual Charges:

(1) Interest at 3½% on Item c(2)	$ 5,775
(2) Amortization of Item c(2) (40 years at 3½%)	1,952
Total Non-Federal Annual Carrying Charges	$ 7,727

e. Total Annual Charges:

(1) Federal Annual Charge, Item b(6)	$ 22,433
(2) Non-Federal Annual Charge, Item d(3)	7,727
(3) Total Estimated Annual Charge	$ 30,160

22. Estimate of benefits.- The benefits expected to result from the proposed improvement are concerned with the protection of vessels and shore installations from damage by storms and with the local fishing and summer resort business and hence their monetary value is not susceptible of exact determination. The improvement, if made, would largely remove the hazards now attending vessels moored at the northerly end of the harbor, wherein, during bad southerly storms, they are torn loose from their moorings and driven ashore and sometimes destroyed. It would also afford protection against wave action and the undertow which causes damage to the wharves and other installations. It would relieve the choppiness of the waters at the upper end of the harbor which makes it difficult for fishing vessels to discharge their catch. It is possible that the harbor would be more generally used by pleasure craft, both for permanent mooring and also for a harbor of refuge.

23. The amount of the yearly saving through virtual elimination of damage to boats being driven ashore and damaged can only be roughly estimated. There are no complete records available as to the actual number of boats damaged at Cundy Harbor. A partial list of boats lost or damaged during the last fifty years was submitted at the hearing. On this list are noted 18 vessels of which only 3 were total losses. It does not appear that complete losses occur even on the average of once in 10 years although heavy partial damage occurs more frequently. Assuming that the average vessel moored at Cundy Harbor has a value of $2,000, a liberal estimate of the yearly damage to vessels would be $3,000.

24. There is only one large wharf that would be protected by the proposed breakwater. This structure is over 60 years old and while damaged nearly every year, some of the loss is attributable to old age as well as storm damage. The total yearly damage to all structures to be protected by the breakwater is not believed to exceed $1,000.

25. The saving to the fishing vessels by being able to discharge catches regularly and with ease is conjectural. Assuming 4 vessels a day are delayed, on the average, one-half hour a day, the total delay, for 200 days would be 400 hours. At an estimated rate of $10 an hour, elimination of delay would give a saving of $4,000.

26. The benefits accruing to the community and to general navigation through improvement of the harbor making it more attractive for recreational craft and usable as a harbor of refuge are intangible. However, the direct benefits outlined above and totaling $8,000 are believed to be estimated extremely liberally.

27. Comparison of benefits and costs.- The estimated annual direct benefits of $8,000 and the estimated annual charges of $30,160 give a ratio of benefits to charges of only .26 to 1. The intangible benefits, outlined in paragraph 26, are not believed to be of sufficient magnitude to make the ratio of benefits to charges favorable.

28. Local cooperation.- Such benefits as would ensue are largely local in character and would require a cash contribution by local interests. In answer to a questionnaire submitted at the time of the hearing, a communication was received on behalf of the wholesale fish companies, the wholesale lobster companies and commercial fishermen from an individual stating that no cash contribution could be expected. At a recent conference interested parties stated that at best only an extremely small contribution might be furnished.

29. Allocation of costs.- The initial cost of the project and the cost of operation and maintenance, are allocated between the Engineer Department, the U. S. Coast Guard, and local interests as follows:

	Initial Cost	Maintenance Cost
Engineer Department	$495,000	$500
U. S. Coast Guard	5,000	100
Local Interests	165,000	-0-

30. Discussion.- Cundy Harbor has an excellent location in respect to the commercial fishing carried on along that portion of the seaboard. It is halfway between Portland and Boothbay and within easy trucking distance of the main line railroad at Brunswick. The action of southerly winds and the tide in New Meadows River cause the waters in the harbor to be rather rough, making the discharge of fish difficult and the harbor uncomfortable for vessels lying at anchor.

31. The fishing business is the principal source of income to the community and has shown a favorable growth during recent years. The State of Maine has recognized the increased traffic on the road to Brunswick from Cundy Harbor resulting from the increase in this business, and plans to convert the present third class road into one of first class construction. The harbor is more than adequate for present traffic and can accommodate additional vessels without undue crowding of the moorings.

32. The summer resort business formerly was of considerable importance in the vicinity although of late, it has fallen off. With the expected general increase in the recreational business in the next few years, the advantageous location of Cundy Harbor would serve as an inducement to vacationists interested in yachting to establish summer homes in the vicinity were it not for the fact that the harbor is uncomfortable and requires frequent moving of vessels from one end of the harbor to the other during storms from the south or from the northeast.

33. Over an extended period, there has been considerable damage to shore installations and to vessels in the northern portion of the harbor by storms from the southerly direction. Vessels have been torn loose from their moorings and only made secure again at great hazard to the safety of the owners. However, much of this trouble could be eliminated by moving the vessels to the lower end of the harbor during southerly storms. However, it is not possible to eliminate all damage

to vessels by mooring them permanently in the southern end of the harbor because this area is also bothered, although not as severely, when there are storms from the northeast. Some of the damage to shore installations described at the hearing was caused by storms from the northeast rather than from the south. The breakwater desired by local interests would afford no protection against such storms.

34. Local residents located at the southern end of the harbor have expressed concern as to the effect the proposed breakwater would have on the ice conditions in that area. One wholesale fish dealer located there plans to conduct operations throughout the year which he would be unable to do if this portion of the harbor is icebound for long periods. Based upon information secured at the site, it appears that ice does not constitute a serious source of trouble at the present time. The length of time the ice remains is largely dependent upon wind conditions. While no positive statement can be made as to the effect the breakwater would have on ice conditions, it appears evident that there would be no improvement and in all likelihood conditions would be less favorable than at present.

35. The breakwater desired by local interests would provide the protection desired at the upper end of the harbor where the major damage has occurred in the past. It would not, however, accomplish the same for the lower end of the harbor which requires protection against northeast storms. Even if the cost of providing two breakwaters to protect both ends of the harbor were not prohibitive, the advisability of so doing would be questionable because of the ice conditions that would probably obtain.

36. The ratio of benefits to costs, as stated in paragraph 27, indicates that the project is not economically justified. In addition, the character of the benefits requires a cash contribution towards the cost of the improvement. There is no possibility of obtaining such a contri-

bution in the amount considered necessary.

37. Conclusion.- The district engineer concludes that the desired improvement is not economically justified at this time.

38. Recommendation.- The district engineer recommends that no project for the improvement of Cundy Harbor, Maine be adopted by the United States at this time.

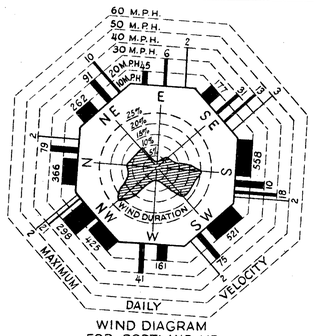
C. T. HUNT
Colonel, Corps of Engineers
District Engineer

Inclosure:
Map

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY

LITTLE ID.



WIND DIAGRAM
FOR PORTLAND, ME.
(1928-1937, INCLUSIVE)

DATA FROM OBSERVATIONS BY THE U.S. WEATHER BUREAU AT PORTLAND STATION, PORTLAND, ME.

N

DESIRED IMPROVEMENT
BREAKWATER - 600-FT. LONG (APPROX.)

NEW MEADOWS RIVER

EBB

C U N D Y H A R B O R

UPPER HARBOR

LOWER HARBOR

WHITE POINT

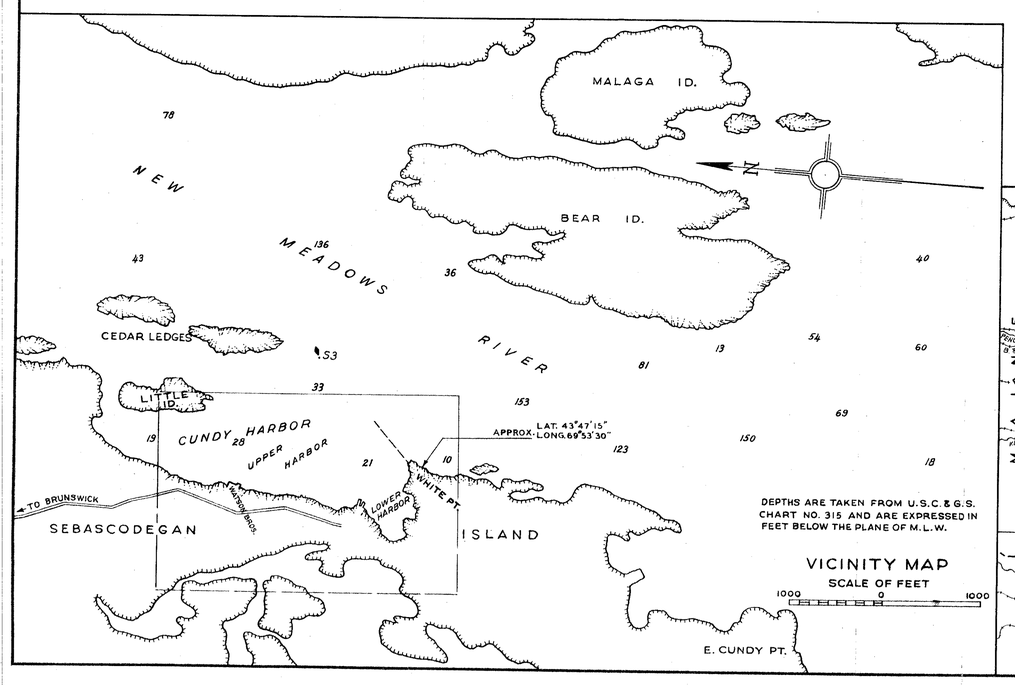
LOBSTER POUND

WATSON BROS.

JULIANO BROS.

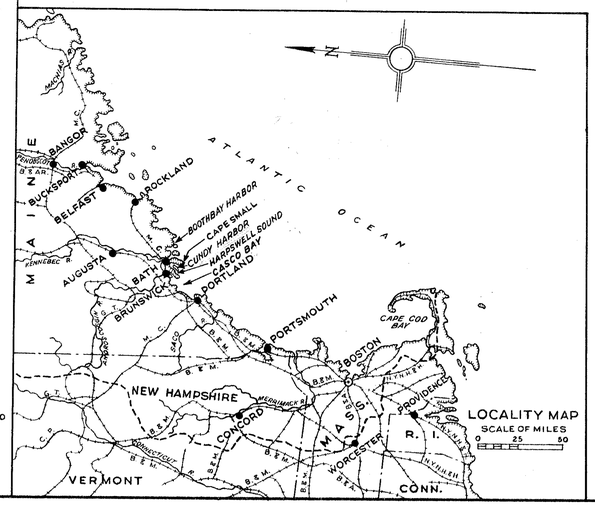
E. W. HOLBROOK

BOAT HOUSE

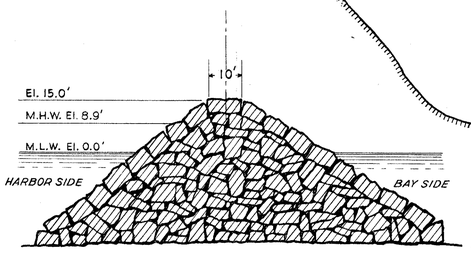


DEPTHS ARE TAKEN FROM U.S.C. & G.S. CHART NO. 315 AND ARE EXPRESSED IN FEET BELOW THE PLANE OF M.L.W.

VICINITY MAP
SCALE OF FEET
1000 0 1000



LOCALITY MAP
SCALE OF MILES
0 25 50



TYPICAL SECTION - BREAKWATER
SCALE VER. 1"=20'
HOR. 1"=20'

LEGEND

- MEAN HIGH WATER ..... LEDGE
- LEDGE EXPOSED AT MEAN HIGH WATER .....
- 6-FT. CURVE OF DEPTH .....
- 12-FT. CURVE OF DEPTH .....
- 18-FT. CURVE OF DEPTH .....
- 30-FT. CURVE OF DEPTH .....
- 36-FT. CURVE OF DEPTH .....
- 42-FT. CURVE OF DEPTH .....
- DEPTHS - BELOW MEAN LOW WATER 25.2
- ELEVATIONS - ABOVE MEAN LOW WATER ..... + 7.3

THE LETTER "R" FOLLOWING DEPTHS AND ELEVATIONS DENOTES ROCK.

NOTE: DEPTHS AND TOPOGRAPHY ARE TAKEN FROM SURVEY OF MAY 1946. DEPTHS ARE EXPRESSED IN FEET AND TENTHS BELOW THE PLANE OF MEAN LOW WATER.

CUNDY HARBOR
MAINE

IN 1 SHEET

SCALE 1:1000

100 0 100 200 300 FT.

U. S. ENGINEER OFFICE, BOSTON, MASS. 7 AUGUST 1946

APPROVAL RECOMMENDED
John S. Allen
CHIEF ENGINEERS DIVISION

APPROVED:
COLONEL, CORPS OF ENGINEERS
DISTRICT ENGINEER

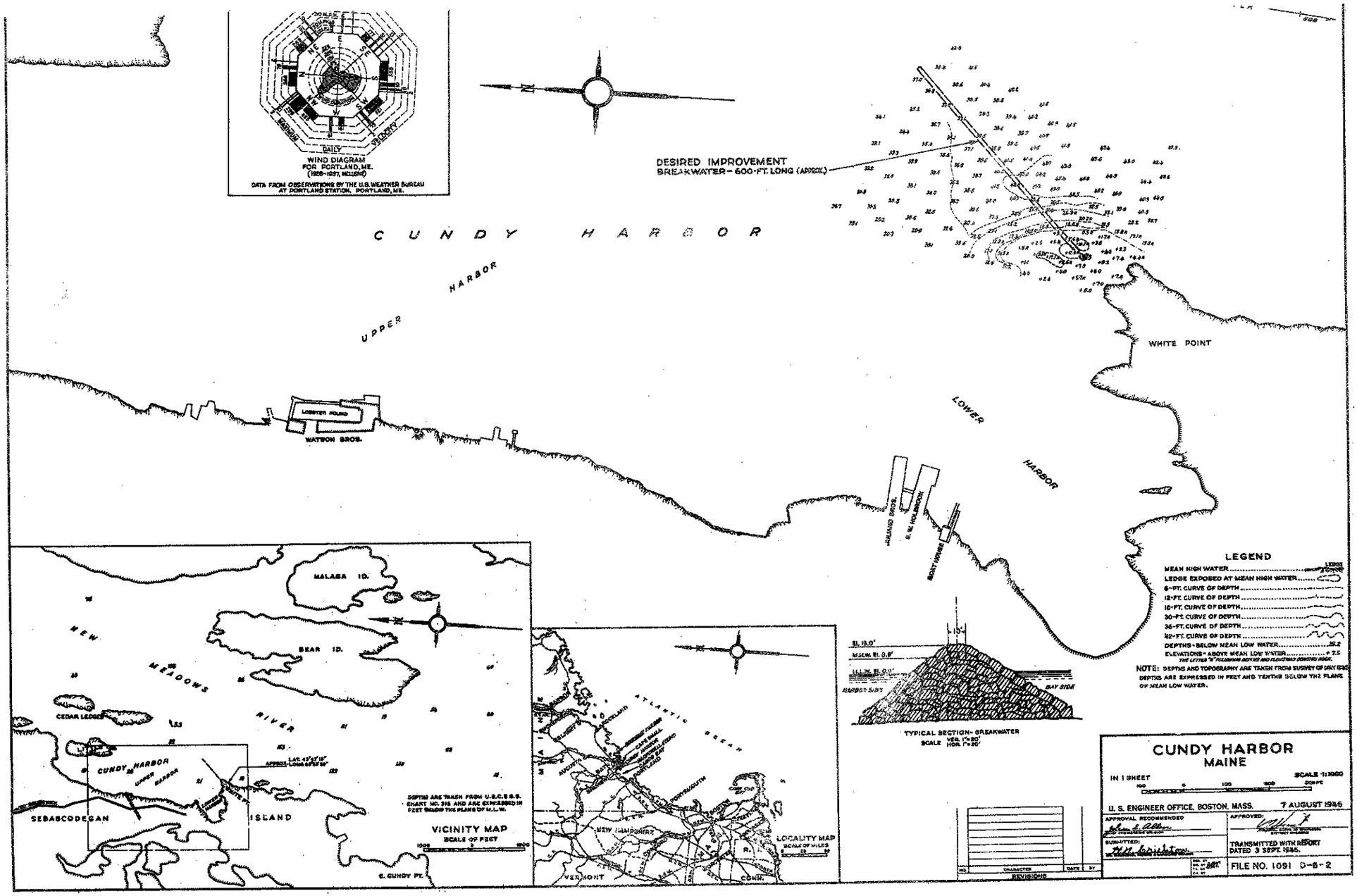
SUBMITTED:
H. H. Brighton
SR. ENGINEER, RIVERS & HARBORS BRANCH

TRANSMITTED WITH REPORT DATED 3 SEPT. 1946.

NO.	CHARACTER	DATE	BY
	REVISIONS		

DES. BY
DR. BY
TR. BY
CH. BY

FILE NO. 1091 D-6-2


WIND DIAGRAM
FOR PORTLAND, ME.
(1928-1937, INCLUSIVE)
DATA FROM OBSERVATIONS BY THE U.S. WEATHER BUREAU AT PORTLAND STATION, PORTLAND, ME.
DESIRED IMPROVEMENT
BREAKWATER - 600-FT. LONG (APPROX.)
CUNDY HARBOR
UPPER HARBOR
LOWER HARBOR
WHITE POINT
LOBSTER POUND
WATSON BROS.
HOLMES BROS.
E. W. HOLBROOK
BOAT HOUSE
MALASA ID.
BEAR ID.
NEW MEADOWS RIVER
CEDAR LEDGE
CUNDY HARBOR
LOWER HARBOR
SEBASCODEGAN ISLAND
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DEPTHS ARE TAKEN FROM U.S.C. & G.S. CHART NO. 315 AND ARE EXPRESSED IN FEET BELOW THE PLANE OF M.L.W.
VICINITY MAP
SCALE OF FEET
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36-FT. CURVE OF DEPTH
42-FT. CURVE OF DEPTH
DEPTHS - BELOW MEAN LOW WATER
ELEVATIONS - ABOVE MEAN LOW WATER
THE LETTER "A" FOLLOWING DEPTHS AND ELEVATIONS DENOTES RADIO.
NOTE: DEPTHS AND TOPOGRAPHY ARE TAKEN FROM SURVEY OF MAY 1936. DEPTHS ARE EXPRESSED IN FEET AND TENTHS BELOW THE PLANE OF MEAN LOW WATER.
CUNDY HARBOR
MAINE
IN 1 SHEET
SCALE 1:1000
U. S. ENGINEER OFFICE, BOSTON, MASS. 7 AUGUST 1936
APPROVAL RECOMMENDED
APPROVED:
SUBMITTED:
TRANSMITTED WITH REPORT DATED 3 SEPT. 1936.
FILE NO. 1091 D-6-2
REVISIONS
NO. CHARACTER DATE BY